

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-11, 13-18, 20, and 21 are pending in this application. No claims are amended, canceled or added by the present response.

In the outstanding Office Action, Claims 1 and 13 were rejected under 35 U.S.C. § 112, first paragraph; and Claims 1-11, 13-18, and 20-21 were rejected under 35 U.S.C. § 103(a) as unpatentable over Chopin et al. (U.S. Patent No. 6,037,289, herein "Chopin") in view of Ogata (U.S. Patent No. 6,113,861).

Applicants note that independent Claims 1 and 13 were rejected under 35 U.S.C. § 112, first paragraph because these claims contain subject matter that does not comply with the written description requirement. However, it is not clear which features of Claims 1 and 13 do not comply with the written description requirement because, as recognized by the outstanding Office Action at page 3, third full paragraph, the specification discloses a photocatalytic coating having a thickness in the order of 30 to 50 nm as recited by Claims 1 and 13.

In addition, the outstanding Office Action recognizes in the same paragraph that the specification discloses titanium oxide particles with a mean diameter of 30 nm and 45 nm. Thus, Applicants respectfully submit that one of ordinary skill in the art would recognize that particles with a mean diameter of 30 or 45 nm "are comparable" with the claimed range of 30 to 50 nm.

If the future Office Action disagrees that the values 30 nm and 45 nm are comparable with the range of 30 to 50 nm, Applicants respectfully request that the next Office Action explains why these values are not comparable.

Regarding the rejection of Claims 1 and 13 under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement, the outstanding Office Action recognizes on page 3, third full paragraph, that the specification discloses a photocatalytic coating over a thickness of the order of 30 to 50 nm. Thus, one of ordinary skill in the art, when trying to make the invention needs to know only that the photocatalytic coating has the thickness within 30 and 50 nm and does not need to know if this thickness is comparable with the mean size of particles.

In this regard, the outstanding Office Action states in the paragraph bridging pages 3 and 4 that the specification fails to establish any direct relationship between the mean diameter of the particles and the thickness of the coating. However, Applicants respectfully submit that that relationship is not necessary for one of ordinary skill in the art in order to make or use the invention.

However, if the next Office Action disagrees with this statement, Applicants respectfully request that the next Office Action explains why one of ordinary skill in the art needs to know the above noted relationship in order to make or use the invention. In this respect, it is noted that the enablement requirement under 35 U.S.C. § 112, first paragraph, is related only to how to make and use the invention.

Accordingly, it is respectfully requested these rejections be withdrawn.

The rejection of Claims 1-11, 13-18, and 20-21 under 35 U.S.C. § 103(a) as unpatentable over Chopin and Ogata is respectfully traversed for the following reasons.

Briefly recapitulating, independent Claim 1 is directed to a substrate that includes a fibrous material and a photocatalytic coating material. The photocatalytic coating material coats at least a portion of the fibrous material and includes a photocatalytic semi-conducting material and an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material.

The originally filed specification discloses in the paragraph bridging pages 1 and 2 that one aspect of the invention is improving the adherence of the coating material to the fibrous material, “in particular providing them [the fibers] with better adhesion and better durability.” Thus, in order to improve the adhesion, independent Claims 1 and 13 recite that the photocatalytic coating material includes an adhesion promoter for promoting adhesion of the photocatalytic semi-conducting material to the fibrous material.

The outstanding Office Action takes the position that one of ordinary skill in the art would look at Chopin and then at Ogata to combine their teachings in order to arrive to a substrate similar with that recited by Claims 1 and 13.

Initially, Applicants respectfully submit that if one of ordinary skill in the art would try to arrive at the claimed substrate, that person would not start with a solid substrate having a planar surface as disclosed in Chopin because it is known that the geometry and properties of the solid planar substrate are different from the properties of the claimed fibrous substrate. In addition, the problems associated with depositing the photocatalytic coating material on the solid planar substrate are also different from the problems associated with depositing the photocatalytic coating material on the fibrous material.

Recognizing these differences between the fibrous substrate and the solid planar substrate, Applicants respectfully submit that one of ordinary skill in the art would not look initially at Chopin as suggested by the outstanding Office Action, unless impermissible hindsight is used.

Also, it is noted that Chopin is concerned with providing UV protection to the planar substrate and not to improve adhesion of the coating materials to fibers as expressly stated in the specification.

In this regard, the outstanding final rejection attempts to show that parts of the inventive combination of Claims 1 and 13 were individually known in other arts and suggests

that such a showing is all that is necessary to establish a valid case of *prima face* obviousness.

The PTO reviewing court recently reviewed such a rationale and dismissed it in *In re Rouffet*,

149 F. 3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) as follows:

As this court has stated, "virtually all [inventions] are combinations of old elements." *Environmental Designs, Ltd. v. Union Oil Co.*, 713 F.2d 693, 698, 218 USPQ 865, 870 (Fed. Cir. 1983); see also *Richdel, Inc. v. Sunspool Corp.*, 714 F.2d 1573, 1579-80, 219 USPQ 8, 12 (Fed. Cir. 1983) ("Most, if not all, inventions are combinations and mostly of old elements."). Therefore an examiner may often find every element of a claimed invention in the prior art. If identification of each claimed element in the prior art were sufficient to negate patentability, very few patents would ever issue. Furthermore, rejecting patents solely by finding prior art corollaries for the claimed elements would permit an examiner to use the claimed invention itself as a blueprint for piecing together elements in the prior art to defeat the patentability of the claimed invention. Such an approach would be "an illogical and inappropriate process by which to determine patentability." *Sensonics, Inc. v. Aerosonic Corp.*, 81 F.3d 1566, 1570, 38 USPQ2d 1551, 1554 (Fed. Cir. 1996). To prevent the use of hindsight based on the invention to defeat patentability of the invention, this court requires the examiner to show a motivation to combine the references that create the case of obviousness. In other words, the examiner must show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed. [emphasis added.]

There has been no such showing of those required reasons made in the outstanding Office Action.

Ogata discloses a photocatalytic sheet which has a base made of a polymeric organic compound and uses as a substrate a fiber, a filament, etc., which are materials closer to the claimed fibrous material than the solid planar substrate of Chopin.

Accordingly, Applicants respectfully submit that one of ordinary skill in the art would start looking at Ogata initially and not at Chopin.

Ogata discloses that titanium oxide particles are simply fixed on polymeric fibers without the need of a promoter of adhesion. The base protective layer in Ogata has no adhesion effect and is only intended to protect the polymeric fibers from the photocatalytic activity of titanium oxide particles. The titanium oxide particles are fixed on the fibers only

by the effect of heat as disclosed by Ogata at column 4, lines 18-19. Without any promoter of adhesion, the fibers of Ogata can still withstand the reuse and washing.

Thus, Applicants respectfully submit that one of ordinary skill in the art would not be aware of possible adhesion problems by looking at the disclosure of Ogata and in addition, he would have no incentive to think about using promoters of adhesion.

Further, one of ordinary skill in the art would not have an incentive to search in the field of solid planar substrates (Chopin) because the solid planar substrates, as discussed above, have different geometry and properties from the fibrous substrate.

Therefore, Applicants respectfully submit that one of ordinary skill in the art would not combine the teachings of Ogata or Chopin because the problems in these references are not similar with the problems faced by the inventor, and thus, Applicants respectfully submit that the combination of Chopin and Ogata is improper as being based on improper hindsight.

Accordingly, Applicants respectfully submit that independent Claims 1 and 13 and each of the claims depending therefrom patentably distinguish over Ogata and Chopin, either alone or in combination.

Consequently, in light of the above discussion, the present application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



Gregory J. Maier
Attorney of Record
Registration No. 25,599

Customer Number
22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 03/06)

Remus F. Fetea, Ph.D.
Registration No. 59,140